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ABSTRACT

This guide offers teaching suggestions for introducing young children to the pleasure of handling clay, for guiding third and fourth grade children in shaping clay into many forms, and for instructing fifth and sixth grade children in the molding, glazing and firing of clay. Sections for each grade (K-6) include discussions of (1) materials and equipment necessary, (2) the organization and placement of these materials, (3) motivation and guidance, (4) activities for the child, and (5) evaluations by the teacher and the child. (JM)

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ART TEACHING GUIDES

Modeling with Clay

Kindergarten-Grade 6

TE 4192899

BUREAU OF CURRICULUM DEVELOPMENT
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FOREWORD

This is one of a series of teaching guides planned to give teachers and supervisors practical help in the implementation of important areas of instruction suggested in the curriculum bulletin *Art in the Elementary School* (Curriculum Bulletin No. 8, 1963–64 Series).

The guides have been designed to include suggestions for teaching a particular subject over a span of several grades. As a result, a teacher can use the instructional suggestions in a flexible way in accordance with the curriculum needs of the pupils in the class.

SEELIG LESTER
Deputy Superintendent of Schools

June 1968

ACKNOWLEDGMENTS

This curriculum bulletin, one in a series of eight *Art Teaching Guides* which present art experiences for children in kindergarten through grade 6, was prepared by the Bureau of Curriculum Development as part of its curriculum workshop program. These guides were produced under the direction of Helene M. Lloyd and William H. Bristow, Assistant Superintendents, and David A. Abramson, Acting Director, Bureau of Curriculum Development. Seelig Lester, Deputy Superintendent of Schools, was responsible for overall supervision of the program.

Developed as the result of research and evaluation by the supervisory staff of the Art Bureau, these bulletins were written under the guidance of Olive L. Riley, Director of Art, with the special assistance of Marian V. Dock and Beatrice Matthews, Art Supervisors, and George Kaye, Acting Director of Art.

Editorial preparation was supervised by Aaron N. Slotkin, Editor, Bureau of Curriculum Development. Lillian B. Amdur edited the manuscripts, and Simon Shulman was responsible for the overall design, page layout, and cover. Patricia M. Callahan, Curriculum Coordinator, coordinated the project.

KINDERGARTEN, GRADES 1 AND 2

Clay is an inviting medium that the child uses with great satisfaction. The pleasure he derives from squeezing, smoothing, pounding, and rolling this material helps him not only to release tensions but also to develop muscular development and coordination.

Very often manipulation may result in an accidental form to which he gives a name. Sometimes the child declares his intention of making something specific. The teacher should compliment the child on his handling of the clay, rather than question him about what he is making, since overemphasis on named or recognizable forms direct ideas too strongly toward a product.

A teacher's enthusiasm will encourage the child to muster all his inventiveness in creating many of his ideas. Frequent constructive evaluation during the working period gives the child confidence and encourages him to further experimentation. The child may experiment with various ways of finishing his clay form. Each child should have the satisfying and educational experience of having at least one piece of his work fired during the school year.

MATERIALS AND EQUIPMENT

Ready-to-use moist ceramic clay on the G-1 List in five- or twenty-five pound containers (about fifty pounds per class, for use and reuse); two large galvanized or plastic covered containers (to keep clay moist); oilcloth for clay table; newspaper; paper towels; damp sponges; plastic bags; masonite or oilcloth squares; small decorative objects: feathers, wooden spools, buttons. Glazes in a variety of colors can be ordered from the G-1 List.

Note: Plasticine is a type of clay that is mixed with oil. It is nonhardening and should not be substituted for clay for it does not provide the same tactile satisfaction as ceramic clay, is difficult to manipulate, and readily picks up dirt. In place of plasticine it is better to use fibrous modeling mache on the G-1 List.

ORGANIZATION AND PLACEMENT

Clay balls about the size of an orange or a baseball, preconditioned and wrapped in airtight plastic bags, are stored in a covered container in which there are several damp sponges; used and leftover pieces of clay are placed in a second covered container. When clay becomes hard, it should be reconditioned.

Balls of clay can be restored to the desired consistency by wrapping them in several thicknesses of very wet cloth or by placing them between well-saturated sponges in an airtight plastic bag.

Clay that is very hard in the original container may be reconditioned by digging deep holes in the dry lump and then pouring water over the clay. The water will seep into the clay through the openings. Since clay does not spoil, it should never be discarded, but kept for reconditioning. Clay is ready for use when it does not stick to the hands.

It is best to confine clay activities to one part of the room, at an oilcloth - covered table seating two or four children. Children should wear plastic aprons or smocks with sleeves rolled up. Clay boards, dampened paper towels, dampened sponges should be available. A few small objects: feathers, shells,

wooden sticks, spools, pegs, beads, toothpicks, should be placed in a container on the table. Hands and fingers are the best tools for first experiences. Later on, tongue depressors, popsicle sticks, or other simple, found instruments may be used.

Completed work should be placed on a shelf, away from heat or drafts, where it can dry at room temperature. Slow drying is essential to prevent warping and cracking.

TEACHER MANAGEMENT

The teacher will need to:

Organize working space, materials, and equipment for quiet and efficient use.

Plan time to ready clay, with pupils' assistance.

Develop routines and good work habits.

Train children to become self-reliant.

Limit the size of the lump of clay, depending on the experience of the child.

Become familiar with the glazing process (if there is a kiln).

Arrange for small groups to watch how to apply glaze (for grades K-4).

Before working, the teacher demonstrates:

Putting on smock or apron and encouraging children to help each other.

Covering the working area with oilcloth or a thick fold of newspapers.

Selecting working materials: clay, clay board, or textured side up of piece of oilcloth, dampened paper towels, tools, sponges.

After working, the teacher demonstrates:

Wiping tools and table with damp paper towels.

Covering unfinished work with damp cloth, paper toweling, or plastic bag to keep it in workable condition.

Placing finished work where it can dry properly.

(Pieces of clay should not be allowed to go down the drain.)

Note: It is suggested that the child continue working on his clay form on consecutive days until work is finished.

GLAZING (if a kiln is available)

Children should experience the magic of having a piece of their clay work fired and glazed. Through firing, glaze is transformed into a glasslike surface with a rich beautiful color that does not resemble the original color of the clay or glaze. Glazes in a variety of colors require a relatively low firing temperature, 1859 degrees Fahrenheit (cone 06), and are therefore suitable for use in school kilns. They can be ordered from the G-1 List. Single-fire glazes are best suited for kindergarten pieces and may be applied to dried clay forms known as greenware that have not yet been fired. These powdered glazes may be prepared beforehand. They should be mixed with a small amount of water and be thoroughly ground in a bowl or mortar, using a spoon or pestle. This mixture should be smooth and have the consistency of cream. Any glaze that is too thick may be thinned by adding a little water and mixing thoroughly. Unused glazes may be stored in labeled, covered glass or plastic containers. It is important that greenware be bone-dry before glazing. As the children watch, the teacher applies the creamy glaze evenly with vertical strokes of a glazing brush (on G-1 List) or any soft flat brush. Glaze should be stirred each time the brush is dipped into the container. A second coating, made with horizontal strokes, should be followed by a third, diagonal coating. Care should be taken to prevent any glaze from getting on the base or bottom of the piece. The piece should not be touched during the glazing process since the delicate glaze coating is easily damaged. The object should be left to dry in preparation for firing. Since the unfired glaze gives no clue to its finished appearance, this could be part of its "magic": to see what happens after the piece has been fired. Each child should have the satisfying and educational experience of possibly having one piece of his work fired during the year.

While the teacher follows the directions that come with the kiln, children are able to observe at first hand the way to stack the clay pieces in the kiln, and to see the transformation of the clay after it has been fired.

Note: See Art in the Elementary Schools, pp. 61-63.

KINDERGARTEN

MOTIVATION AND GUIDANCE Teacher Says	ACTIVITIES Child Does
Isn't it fun to play with clay? I see Mary likes to roll and roll the clay with her hands.	The child experiments by squeezing, pressing, and pounding clay.
Feel the clay. How does it feel? Hard or soft? Is it smooth or rough?	He rolls clay into small balls or coils.
What else can you do with your clay besides rolling and making little balls? See how you can make two pieces of clay stick together. Watch how I pinch the ends and then fasten them together with my fingers.	He pulls off pieces of clay and then attempts to squeeze them together, using his fingers and small tools to make surface marks on his clay.
	He expresses reactions through talking freely about the activity.
What can you do to your clay and still keep it in one piece?	He responds with suitable activity, poking holes into clay with his fingers.
I see that you put marks into your clay with your fingers. Do you think this makes it pretty?	Listening attentively and volunteering answers, he continues to manipulate clay and uses it more confidently.
Show me some designs you can make on the clay with one of these tools. Is it better to use many tools or just one or two?	He experiments with tools, making surface designs. Choosing one or two tools he likes best, he uses these to decorate his piece. He repeats new words and begins to use them correctly.
How can you make your clay piece stand by itself? Would lightly pressing it down on the table help?	He discovers his form may change when he tries to press it to make it stand on the table.
I can see all the way through your clay. How did you do it? What else do you think you can do to your clay to make it look pretty?	He names created forms and adds various small objects to enhance his form. He learns correct names of unfamiliar objects.
Let me show you how to pick up small pieces of clay so they can go back into the plastic bag. Press one piece of clay against another piece and then another until the whole ball is back together again.	He squeezes small pieces of clay together and returns unused pieces to clay container.
Can you put your ball of clay into the plastic bag and put it away?	He understands and tries to follow directions. He cleans up his working area and puts his clay piece away to dry in a designated place.

Painting A Dry Clay Form (when clay cannot be fired)

Materials: Tempera paint (a little thinner than usual) in assorted colors in small covered containers; camels hair round brush on G-1 List; paint brushes.

MOTIVATION AND GUIDANCE

Teacher Says

Here are some of your clay pieces that are dry enough to be painted.

Watch how I dip this little brush into the paint, press the brush against the side of the jar, and then paint a small part of the clay piece.

Now you know how to work. You may choose the colors you wish for your clay piece.

ACTIVITIES

Child Does

He decides on the color or colors he wishes to use and paints his object.

He may use more than one color for "pretty" effects.

He watches the teacher as she shows how to paint a clay surface. He expresses his ideas to his peers and grows in self-confidence as he completes his project.

EVALUATION

NOTE: It must be understood that some form of constructive evaluation, either individual or group, should be a part of every lesson. Typical evaluation questions follow.

By the Teacher

Is he developing an awareness of how clay can be used?

Is he improving in coordination? In manipulation?

Can he use his fingers as a tool to enhance his clay design?

Is he able to follow established routines?

With the Child

Show me clay that feels and looks too soft and wet. Which clay seems just right?

How did you make this round opening?

Where did you put a design on your clay? Why did you put it there?

Why do you put a piece of sponge in the plastic bag? Where do the clay boards belong?

GRADE 1

MOTIVATION AND GUIDANCE

Teacher Says

How many children ever played with sand? Where? Do you want to tell us about it? What did you make? Today we have a material that is a little like sand. It is a kind of earth. Here is some. Is it exactly like sand? It is called clay.

Feel the clay. How does it feel? Soft or hard? Rough or smooth?

What else can you do with your clay besides squeezing, pressing, pulling?

See how I can make two pieces stick together. If the clay is very soft and wet, can I pinch pieces together? Watch how I pinch the ends and then fasten them together with my fingers.

ACTIVITIES

Child Does

The child listens attentively as the teacher explains the nature of clay. He takes part in the discussion.

He renews his concept of the word clay and uses it in his vocabulary.

He repeats new words and uses them correctly in the situation.

He manipulates clay to get a sense of the material and shapes it into small balls and coils.

He presses parts of his pieces of clay together, and may achieve a form and name it. Through talking freely, he expresses his reaction to the activity.

MOTIVATION AND GUIDANCE Teacher Says	ACTIVITIES Child Does
Try to press your clay piece lightly down on the table to make it stand. Do you think you can make a "pretty" standing clay design?	He discovers he may change the form as he makes it stand on a table. He tries to keep his clay piece in an upright position.
I can see through your clay design. How did you do it? Do you think this helps make it beautiful?	He pokes a hole or holes through clay with fingers or tools. He talks about the activity and notes gross differences in shapes made by fingers and tools.
How else can you make your clay piece beautiful on all sides? What can you use?	He adds various small objects from found materials, such as toothpicks, feathers, buttons, to enhance his clay piece.
What else can you do to your clay besides putting things into it?	He experiments with one or two tools to achieve texture.
Can you make a design on the clay with a tool or your fingers?	He completes his clay arrangement. He presses unused pieces of clay together, makes a ball of them, and puts clay ball into a plastic bag. He then adds dampened sponge to bag and twists bag to close.
See, this is how small pieces can be picked up so that they can go back into the plastic bag. Press one piece of clay against another piece and then another until a whole ball is made of unused clay pieces.	
Do you think you can wet and squeeze a sponge and put it into the same bag with the ball of clay?	If he does not understand he asks questions.
Why do you think it is a good idea to put a dampened sponge into a bag?	
I see that you know how and where to put your finished clay piece carefully away to dry.	He sets his clay piece away to dry in a designated place and cleans up his working area.
	He follows rules for cleaning and returning tools to proper place.

NOTE: For painting a dry clay form, see kindergarten section, page 4.

EVALUATION

NOTE: It must be understood that some form of constructive evaluation, either individual or group, should be a part of every lesson. Typical evaluation questions follow.

By the Teacher	With the Child
Is he improving in manipulating clay?	How did you make your clay design stand?
Is he able to use tools or his fingers to enhance the surface treatment?	Where did you use a tool to make your design "pretty"? Where did you use your fingers?
Is he sensitive to working on clay in the round?	How did you make your clay beautiful on all sides?
Is he able to form a bulky shape rather than a thin, fragile arrangement?	How did you make your clay figure look strong and sturdy?
Can he recognize some qualities inherent to clay?	How do you put two pieces of clay together so that they hold?
Is he able to follow established routines?	Why do you think the bags of clay should go into a big container?

GRADE 2

MOTIVATION AND GUIDANCE

Teacher Says

Would you like to take a lump of clay and model with it? Would you like to model an animal, a bird, or another kind of creature?

I see you know how to work with clay.

I like the way you built up the clay so that you have a standing clay design.

I see that you have pulled out some parts of your figure, and you have welded other parts together.

Some of your ideas remind me of make-believe creatures such as beasts, goblins, or birds of fantasy.

Will your idea have feathers? Fur? How many eyes will it have? Where will you use your tools? Your fingers? How can you improve your idea? Which part of your idea looks the most exciting? Can you tell why?

Do you like your idea well enough to put it away until another time to finish or would you consider this a good experiment and return the clay to the plastic bag?

Show how you will cover your work to keep it "just right" until the next time. Show where you will put clay that has become dry.

ACTIVITIES

Child Does

He takes a well-conditioned pliable lump of clay from a plastic bag.

Working on it from all sides, he builds a clay form.

He manipulates the clay into a standing form. He may divide the clay to fashion parts of it into arms, legs, and a head. He may weld parts together to form a main mass and he may pull out parts to make a standing arrangement.

He recognizes some similarity between a real and an imaginative form. He may name his idea.

He manipulates or adds other parts to clarify his imaginative form. Using simple tools or his fingers, he adds textural quality to emphasize dramatic elements by exaggerating the size and shape of some parts.

He discusses his model with the teacher but makes his own final evaluation and decides whether or not to keep it or regard it as an experiment.

He covers form with a damp cloth or several thicknesses of wet paper towel. He distinguishes dry from moist clay and places each kind of clay into its proper receptacle.

EVALUATION

NOTE: It must be understood that some form of constructive evaluation, either individual or group, should be a part of every lesson. Typical questions follow.

By the Teacher

Does his work show imagination and originality? Is he sensitive to working "in the round"?

How well can he weld parts together? Can he recognize why some parts must be welded?

Is he willing to consider some of his efforts experimental?

Has he learned about the care and use of clay? Can he recondition clay?

Is he improving in his understanding of the use of clay? Is he learning to infer and draw conclusions based on his evaluation and experience?

Does he use his newly learned words as part of his vocabulary?

Is he able to follow established routines for cleaning tools and returning materials?

With the Child

Which exaggerated part helps your idea?

Have you considered it from all sides?

Are there any parts that may break off easily? Why? How did you strengthen thin parts of your model?

Do you like what you made very much? Do you think if you did it again you could do better?

What do you do when clay crumbles and falls apart? What do you do when clay is too soft?

What does weld mean? Where have you used texture? What do I mean when I say "the clay is just right"?

Do you know where to place your clay pieces to dry if you want to keep them? Why do you think your clay piece should dry slowly?

GRADES 3 AND 4

At this level, whether or not the child has had previous clay experiences, it is advisable that he start by using the medium experimentally. Through experimentation, the child discovers that a freely constructed abstract shape may be designed from either a lump or from slabs of clay. Designing with lumps or slabs placed to some extent in an upright position, rather than flat on a working surface, offers additional opportunities for ingenious solutions to problems related to the balance of masses. As the child continues, using both lump and slab forms for his material, he may discover the beginnings of familiar or imaginary forms. He should be encouraged to use his discovery as a starting point and to pull out or to add pieces of clay to make his idea more expressive.

Frequently, discovered forms are related to people, animals, or birds in a real or an imaginary world. Previous clay experiences will have given the child increased ability and confidence. He may now be ready to model human or animal forms on a larger scale than that in which he previously worked. The teacher should praise and encourage individual interpretations rather than stereotyped representations of forms. Tools may be used to clarify forms and add texture and pattern to various areas.

Children should be asked to select for firing only those pieces that are solid in construction and pleasing from all views. Each child should have the satisfying and educational experience of having at least one piece of his work fired during the year.

MATERIALS AND EQUIPMENT

Ready-to-use moist ceramic clay from the G-1 List in twenty-five pound containers (about fifty pounds per class, for use and reuse); glazes in a variety of colors from G-1 and 1-A Lists; modeling tools, cones, and posts from the 1-A List. Other materials: two large glazing brushes; galvanized or plastic covered containers (to keep clay moist); oilcloth for clay table; newspaper; paper towels; damp sponges, plastic bags; masonite or oilcloth squares; dowel rods to use as improvised rolling pins; putty knife or blunt knives; screws, nuts, bolts, keys, orange sticks, hairpins, bent wire, small wooden forms, or sticks for producing patterned and textured effects. Small decorative objects, such as feathers, wooden spools, buttons. Slip (clay and water mixed to the consistency of cream), to serve as an adhesive, may be prepared in advance.

NOTE: Plasticine is a type of clay that is mixed with oil. It is nonhardening and should not be substituted for clay, for it does not provide the same tactile satisfaction as ceramic clay, is difficult to manipulate, and readily picks up dirt.

ORGANIZATION AND PLACEMENT

Clay balls, about the size of an orange or a baseball, conditioned and ready for use, wrapped in airtight plastic bags, are stored in a covered container in which there are several damp sponges; used and leftover pieces of clay are placed by the child in a second covered container.

When clay becomes hard, it should be reconditioned. Balls of clay can be restored to the desired consistency by wrapping them in several thicknesses of very wet cloth or by placing them between well-saturated sponges in an airtight plastic bag.

Very hard clay in the original container may be reconditioned by digging deep holes in the dry lump and then pouring water over the clay. The water will seep into the clay through the openings. Since clay does not spoil, it should never be discarded, but kept for reconditioning. Clay is ready for use when it does not stick to the hands.

It is best to confine clay activities to an oilcloth-covered table seating two to four children. Children should wear plastic aprons or smocks with sleeves rolled up. Clay boards, dampened paper towels, and dampened sponges should be easily available. A few small objects, such as feathers, shells, wooden sticks, spools, pegs, beads, and toothpicks should be placed in containers on the clay table. Hands and fingers are the best tools for a child's first experiences. Later on, tongue depressors, popsicle sticks, or other simple, found instruments may be used.

Completed work should be placed on a shelf, away from heat or drafts, where it can dry at room temperature. Slow drying is essential to prevent warping and cracking.

GLAZING (if a kiln is available)

See detailed explanation in *Art in the Elementary Schools,* pp.61-63. At some time, children should experience the magic of having a piece of their clay work fired and glazed. Through firing, glaze is transformed into glasslike surface, with a rich, beautiful color that does not resemble the original color of the clay or glaze. Glazes in a variety of colors that require a relatively low-firing temperature, 1859 degrees Fahrenheit (cone 06), and are therefore suitable for use in school kilns, can be ordered from the G-1 Supply List or the 1-A List. Single-fire glazes are best suited for beginners' pieces and may be applied to dried clay forms known as "greenware," that have not yet been fired. These powdered glazes may be prepared beforehand. They should be mixed with a small amount of water and thoroughly ground in a bowl or mortar, using a spoon or pestle. This mixture should be smooth and have the consistency of cream. Any glaze that is too thick may be thinned by adding a little water and again mixed thoroughly. Unused glazes may be stored in labeled, covered glass or plastic containers. It is important that greenware be thoroughly dry before glazing. As the children watch, the teacher applies the creamy glaze evenly with vertical strokes of a glazing brush or any soft, flat brush. Glaze should be stirred each time the brush is dipped into the container. A second coating, made with horizontal strokes, should be followed by a third, diagonal coating. Care should be taken to prevent glaze from getting on the base or bottom of the piece. The piece should not be touched during the glazing process, since the delicate glaze coating is easily damaged. The object should be left to dry in preparation for firing. Since the unfired glaze gives no clue to its finished appearance, this could be part of its "magic"; to see what happens after the piece has been fired.

It is to be noted that an electric kiln for firing ceramic clay is considered essential equipment in the modern school. One person in a school should receive instruction in, and be responsible for, the operation of the kiln. While the teacher follows the directions that come with the kiln, children are able to observe at first hand the way to stack clay pieces in the kiln and to see the transformation of the clay after it has been fired.

TEACHER MANAGEMENT

The teacher will need to:

Organize the working space, materials, and equipment in the classroom for quiet and efficient use.

Plan time to prepare clay with pupil's assistance.

Develop the routine and good work habits essential to the clay activity.

Train children to become self-reliant.

Before working, the teacher suggests that:

Children put on smocks or aprons and that they help each other to do this.

Children cover the working area with oilcloth or thick fold of newspaper.

Children select working materials: clay, clay board, or textured side up of piece of oilcloth; dampened paper towels, tools, sponges.

The teacher will need to:

Determine the size of the lump of clay, depending on the experience of the child.

Become familiar with the glazing process (if there is a kiln).

Arrange for small groups to watch how to apply glaze.

After working, the teacher demonstrates:

How to wipe tools and tables with damp paper towels.

How to cover unfinished work with damp cloth, paper toweling, or plastic sack to keep it in workable condition.

Where to place finished work so that it can dry properly.

(Pieces of clay should not be allowed to go down the drain.)

NOTE: It is suggested that the child continue working on the clay form on consecutive days until work is finished.

GRADE 3

MOTIVATION AND GUIDANCE

Teacher Says

How many children have ever watched fish swim in a bowl or tank? A fish probably becomes very bored just swimming around and around. Do you think you could design an imaginary underwater castle so that a little fish could swim through, around, over, and under your arrangement?

Who would like to try making an underwater castle out of clay slabs? (The teacher demonstrates how to roll clay slabs. Refer to *Art in the Elementary Schools,* p. 69.)

To join slabs of clay, we scratch the parts to be joined and use slip as an adhesive to fasten the scored parts together. Be sure to press together the parts of clay to be joined.

Are the clay parts well attached? Does your castle stand firmly? Are you sure the parts are solid?

(A few thought-provoking questions at this time will help the child clarify his ideas and foster his inventiveness.)

Have you considered your arrangement from all sides?

Did you make some parts textured and some plain?

Have you used varied sizes and shapes of openings? Are some of the openings large enough for fish to pass through?

ACTIVITIES

Child Does

The child pokes, squeezes, pulls, and manipulates clay until he has a freely constructed arrangement. He uses his fingers and small tools; he pulls out or adds pieces of clay to make his design more varied.

A child may decide to construct an underwater castle from clay slabs. He experiments by placing a lump of clay on a working surface between two wooden strips about one-half inch high and twelve inches long. He then rolls the clay flat with a dowel rod or rolling pin. If he so wishes, he can simply flatten clay into pancake-like slabs with his hands. He divides slabs by cutting them with a blunt knife into the desired shape.

The child experiments with clay slabs by slitting, twisting, coiling, rolling, or piercing. He may combine various pieces of slab or lump clay together by welding, as demonstrated by the teacher.

He makes sure all parts of his arrangement are well joined and that it can stand alone.

He participates in a mid-evaluation question period and strives to improve his craftsmanship.

The child continues to turn his clay form so he can view and work on the total design.

He experiments with a variety of tools to achieve surface interest.

He turns his piece around so that he may make a good judgment as to the placing and size of openings.

MOTIVATION AND GUIDANCE	ACTIVITIES
Teacher Says	**Child Does**
I'll show you how to poke or dig out a few holes in the underside of a piece of clay to permit heat and air to circulate and allow the clay to dry out.	He digs or pokes a few holes in the underside of the piece if his arrangement is made from a solid lump of clay. He may identify his piece by scratching his initials with a pointed tool on the underside.
We'll find a good place where your clay will dry evenly.	He sets his piece to dry away from heat and drafts.
I see that you know why a piece of wet sponge belongs in the container.	Child returns unused pieces to clay container and cleans up his working area.
How do you think your arrangement will look in a fish tank?	The children look at each other's work. They learn to appreciate differences in the way in which clay has been used.
Would color add to the beauty of your piece and to the fish tank?	With the teacher the child looks over the sample pieces of glaze and selects those colors he thinks will enhance his piece in relation to whatever else is in the fish tank.
Should it be dull, shiny, or textured?	
Can you recognize turquoise glaze? Which color is chartreuse? Do you know the names of any other colors of these sample glazes?	
(The teacher applies glaze. See *Art in the Elementary Schools,* pp. 61–63.)	Children watch as the teacher applies glaze to the dried clay forms.

EVALUATION

NOTE: It must be understood that some form of constructive evaluation, either individual or group, should be a part of every lesson. Typical evaluation questions follow.

By the Teacher	With the Child
Have the children discovered that clay for a slab form should be stiffer than clay for a lump form?	Who has worked directly with a lump of clay? Who has worked with clay slabs? Who has combined lumps and slabs of clay?
When making an arrangement from a lump of clay, do they form a bulky shape rather than one that is thin and fragile?	How could you temporarily support an extended part?
Do they show good craftsmanship in constructing and welding clay parts?	Show where you put two pieces of slab together; two lumps of clay.
Do the arrangements show originality?	Where have you been able to show texture?
Do the arrangements reflect sensitivity to a three-dimensional form?	Which openings are for the fish?
Can children construct a form that will serve a functional purpose?	Which openings are for light?
Are children able to follow established routines for cleaning up?	How did you make your design interesting on all sides?
	Where do the openings in your form help your idea?

GRADE 4

MOTIVATION AND GUIDANCE Teacher Says	ACTIVITIES Child Does
Mary, can you show a figure in action that is a good dancing position? Notice the rhythmic line of her body and the graceful position of her hands and legs.	He watches his classmates take various poses and thinks about one he would like to model. He puts on a smock or apron, prepares his working area for modeling, and assembles his tools.
John, what kind of pose can you take? I can recognize that as of a strong boxer. I like the dramatic quality of your pose.	
By closing your eyes for a minute, you can visualize a figure in action that you would like to model. Press your fingers into your pieces of clay. If they make a slight dent in the clay and the clay does not stick to your fingers, it is just right.	He recognizes the importance of the "just right" consistency of clay necessary to keep the clay from slumping or falling apart. He tests it with his fingers.
Try bending, turning, and shaping the clay to suggest a figure in action. You know that slip acts like a kind of glue. You can make it by adding enough water to clay to make it stand in little peaks.	He visualizes a pose. He forms his figure from a lump of clay by pulling and squeezing out parts for the body, or he divides a lump of clay into smaller parts and one large piece, or he scores or scratches the surface to be joined and adds slip before pressing them together tightly. He welds parts to the larger lumps of clay.
Have you welded your clay pieces carefully so that no crack will open as your work dries?	He may decide to set his figures on a base. Where necessary, he improvises a temporary support for extending parts.
While working, turn your clay form so that you can view it from all sides, and see the relationship of the movement to the entire design.	He turns his form around, bends, and manipulates the figure. He may reexamine a posed form to clarify his thinking. He tries to keep it simple and compact, yet retains the dramatic quality of an action figure. He decides whether his figure or animal will be real or imaginary.
I like the way you have exaggerated some parts of your figure to make your idea clearer.	He continues to clarify his form and heighten the emotional quality by bending and exaggerating some parts of the form.
I see you are taking a quick pose for each other to recapture your idea.	He may recapture the sensation of the desired action by observing the physical movement involved.
You may or may not omit facial features. Suppose you experiment with another little piece of clay shaped like a head, and use a small tool or your fingers to give it features. Can you think of a particular tool that would be useful for suggesting hair?	Through experimentation, he discovers that certain found objects can be used effectively to suggest features. He varies his tools to achieve interesting textural effects.
You have clarified parts of the clothing very well by pinching and fluting the edge of the hem and the bottom of the trouser.	He may suggest clothing by adding to the neckline and sleeve a coil proportioned to the size of the clay form. He adds a heavier coil at the hemline of a dress or bottom of the trouser. He cuts the ends of the coil at opposite angles or tapers them so that the joining will be level. He subtly welds one side of the coil.

MOTIVATION AND GUIDANCE

Teacher Says

Which of these pieces are pleasing in proportion? Which one has good movement in design because of the way the clay was modeled?

Why is slow drying essential to prevent warping or cracking?

Can you name and recognize unusual colors?

How do you think I should apply the glaze so that I may achieve a pattern?

Now that you are ready to have your piece glazed, we will need to consider the kind and color that will be suited to your form.

ACTIVITIES

Child Does

The child looks at his classmates' finished work. He learns to appreciate differences in the way in which his peers work.

He places incomplete work, properly covered, in a designated place until the next time, or he places completed work on a shelf away from the heat or drafts where it can dry at room temperature.

With the teacher the child looks over sample pieces of glaze and selects those colors he thinks will enliven his clay sculpture.

He watches the teacher apply glaze. (See *Art in the Elementary Schools,* pp. 61–63.)

EVALUATION

NOTE: It must be understood that some form of constructive evaluation, either individual or group, should be a part of every lesson. Typical evaluation questions follow.

By the Teacher

Is the child capable of preparing clay to a just right consistency?

Can he prepare slip and use it properly?

Has he shown good craftsmanship?

Is he more appreciative of, and able to recognize the design qualities of clay sculpture?

Does he realize that the expressive form is more important than realistic rendition?

Is he developing patience in working with materials?

Can he select a particular idea, express it in clay, and complete it?

With the Child

Does your figure have a feeling of oneness?

Show where you have welded parts together.

What makes your arrangement interesting from all sides?

Show where you have attached coils to achieve the feeling of clothing.

Where did you show texture so that it adds interest to your figure? What tool was especially helpful?

Does your figure express the dramatic quality you wished to convey?

GRADES 5 AND 6

Clay is so inviting to a child that he will immediately begin to shape it with his fingers and hands. The pleasure derived from squeezing, smoothing, rolling, and squashing allows great freedom for creative expression and artistic growth.

When the child has developed something tangible, he has gained a great deal of satisfaction and the fulfillment of an emotional need. Creating in three dimensions offers the child an opportunity to work and express his feelings and ideas without the need for mastery of a tool.

The nature of the medium permits constant change in position, size, and shape as the child brings life and movement to his work. Clay can so fascinate a child that he will prefer working with it rather than with other art media.

MATERIALS AND EQUIPMENT

Ready-to-use plastic ceramic clay. (Plasticene, a type of modeling clay, is not recommended for use in grades kindergarten through six because it does not give the tactile satisfaction of moist ceramic clay. Plasticene cannot be fired and never hardens.)

A class of thirty will need between forty and fifty pounds of clay for use and reuse. Each child should have a lump of clay (the size of a grapefruit) in a plastic bag tied at the top to keep it airtight. These individual portions can be prepared ahead of time. A square of oilcloth (cloth side up), wrapping paper, or newspaper may be used to protect the working surface. A damp sponge for keeping hands moist while working and for clean-up purposes is essential for each child. A square of shellacked board, masonite, or a tile enables the child to turn around the piece he is modeling so that he may view it from all angles. Airtight plastic bags or tin boxes may be used to keep unfinished forms moist.

Simple tools, such as tongue depressor, orangewood stick, pop stick, wire cutting tool (or its equivalent made from a short, sturdy piece of wire or a wire hairpin fastened to the wide end of pen or pencil or other improvised tools) may be used. Hands and fingers are the best tools but at this level the child is more interested in detailed forms and finished craftsmanship which demand the use of finer tools.

A putty knife or blunt-tipped table knife is useful for cutting the amount of clay needed for immediate use, scraping excess clay from fingers, and removing the finished piece from the working base. A wire tool is useful in hollowing out pieces that are heavy and prone to break when fired. A plastic comb, a small piece of metal screening, or other improvised tools can be used to create a surface decoration that gives textural quality to a desired area of the piece. The children can also collect other small objects that will make an interesting impression on clay such as a discarded grater, sieve, keys, nuts, bolts, washers, sticks of various sizes, etc. For making flat slabs, a rolling pin or a thick dowel stick will prove helpful.

A small container of water should be available to moisten fingers for smoothing the finished form.

Two covered crocks or heavy plastic containers in which to store the clay should be kept in a cool part of the room away from radiators. Clay balls in plastic bags ready for use should be stored in one container while leftover clay pieces and used clay may be stored in the other to be reconditioned for future use.

A smock or apron is essential to keep clothing clean.

In grade six, newspapers and scissors will be needed for patternmaking.

Glazing

Glazes in a variety of colors and finishes are available. The following glazes are suggested: single fire, semi-matte glazes which may be applied to greenware (dried clay forms) that has not been fired; opaque and transparent majolica glazes that are applied to forms previously fired and known as "bisque" or "biscuit"; underglaze colors that may be applied with a soft brush to greenware or biscuit for decoration.

A mortar and pestle should be used to grind and mix powdered glazes prior to their use. These are mixed to a thin creamy consistency and stirred until the mixture is smooth. They may be stored in small, labeled glass jars. A glaze that is too thick may be thinned with water.

Soft, flat brushes are usually used to apply glazes. Biscuit pieces are submerged in water to expel all air bubbles before applying glaze. Glaze is applied in vertical strokes for the first coat, horizontal strokes for the second, diagonal for the third. The base of an object must be kept free from glaze.

Firing

Instructions on the packages of glaze indicate the degree of firing heat required for maturing. An electric kiln for firing ceramic clay is considered essential equipment in a modern school. The pieces to be fired are placed carefully on trays and sent to the teacher who is in charge of operating the kiln.

ORGANIZATION AND PLACEMENT

Routines should be thoroughly established with the entire class before the children are divided into small groups of five or six.

Before modeling, the child puts on his apron or smock and gets his clay in a plastic bag from the crock. Damp sponges should be placed in a basin so that each child can moisten his hands before removing the clay from the plastic bag. If the tabletop is not washable, it is advisable to cover it with a sheet of oilcloth, plastic, or newspaper.

The lump of clay is placed on a small square of linoleum. A basin of water is set in the center of the worktable. If the hands are kept moist, the clay will not dry and flake. This will insure that powdered clay will not gather on the floor.

The teacher instructs the child to use a small piece of moist clay to gather up the crumbs of dried clay before they are ground underfoot.

After modeling, the child places leftover clay in a crock provided for this purpose and stores his partly finished object in a plastic bag. He places it in a safe place until his next work period. To clean his working area, he uses a thoroughly rinsed sponge and a dry cloth. He cleans up all tools, then wipes his hands on a damp paper towel, and hangs up his smock.

Finished objects worth firing are placed where they can dry slowly at room temperature away from drafts or heat. For economy, dry clay should never be thrown away. It may be reclaimed by placing it in a plastic bag with a little water or a wet sponge. Before using this resoftened clay, it should be wedged to expel air and to produce a smooth texture throughout. If not wedged, a piece made from restored clay may contain air bubbles that will cause it to shatter in the kiln.

Wedging is done by cutting a lump of clay in half with a knife or wire, forcibly throwing the cut side of one half against the table, and then pounding the other half on top. The entire mass of clay may then be worked into a cube which should be cut in half to test it for air bubbles. If clear, both smooth halves are pounded together and no further wedging is necessary.

GRADE 5

Experimental Designing

MOTIVATION AND GUIDANCE

Teacher Says

In order to renew your acquaintance with ceramic clay and get some new ideas for using it, experiment with a large mass. You may use it in one piece or break it into several parts to be worked separately or perhaps joined together later. Remember how you designed with lumps and slabs? In addition to these methods, you may want to use coils. These can be made long, short, thick, or thin, and may be combined or used with lumps and slabs.

Make certain that you join or weld pieces together very carefully so that no cracks will open up as the work dries and cause it to fall apart.

Do you want all surfaces plain and smooth? What can you use to give interesting texture or pattern to some or all of your pieces? Can you use this orangewood stick or this strong wire hairpin as a tool?

Does your experimental arrangement suggest real or imaginary forms, such as people, birds, or animals? If so, what do you need to do to make it more apparent?

Now that your piece has been biscuit-fired, what kind of finish would you like to give it? Here are some small-fired samples of dull or matte-finish glazes that you may want to use.

ACTIVITIES

Child Does

The child takes a large pre-cut mass of clay wrapped in an airtight plastic bag. He shapes lumps of varied sizes into geometric or free forms with a rolling pin or thick dowel. He rolls clay into slabs of even or graduated thickness that he cuts into interesting shapes. He experiments in making coils from elongated lumps of clay which he rolls back and forth with both hands across a flat surface.

To adhere the various parts securely, the child scores or scratches the surfaces to be joined and adds slip before pressing them together tightly.

The child uses a wide-toothed comb, a small piece of coarse screening, nuts, washers, large embossed buttons, or other items to create decorative pattern or textural treatment. He may smooth, scratch, roughen, or gouge out the surface of a clay area with an improvised tool.

If the child discovers the possibility of creating a recognizable object in his design, he makes changes or additions.

From the examples of glazes, the child selects the one or ones he thinks will enhance the quality of his work. He applies the necessary coats of glaze, and carefully places the completed piece on a large stilt that stands on a metal tray to be carried to the kiln room.

Designing A Pottery Piece

MOTIVATION AND GUIDANCE

Teacher Says

Now that you have experimented in making coils, let's talk about some of the things you discovered about the coil method. How thick must a coil be if you want to make a sturdy one about 8" long that can be coiled in a snakelike way? What happens to the surface of a coil, especially a thick one, when you bend it too rapidly or into a deep arc? How can you prevent this from happening?

What useful pottery pieces do you think you can design using only the coil method?

ACTIVITIES

Child Does

On the basis of their experience, the children discuss the desirability of making long coils approximately ½" or more in thickness and of slowly easing a straight coil into a gradually curving shallow arc, by manipulating both hands back and forth across the rounded surface.

Pottery pieces such as tiles, bowls, small plates, and vases are suggested.

MOTIVATION AND GUIDANCE

Teacher Says

ACTIVITIES

Child Does

If you want to build a piece by placing coil upon coil, you will need to experiment to find out how to place the rows so that the sides of the piece remain vertical, slant, or curve in or out. You may build up the form by using long continuous coils that spiral upward, row upon row, or you may cut each succeeding coil to the size of the desired circumference. (The teacher demonstrates how to join the end of one coil to another by cutting the opposing ends on the diagonal, cross-stitching, and coating them with slip, and pressing them firmly together.)

The child plans his piece and begins to experiment to create an original, sturdy form using coils of varying lengths and thicknesses. He places the coils one upon the other, so that changes in contour of the piece are gradual. This will prevent the walls of his work from spreading and collapsing.

You all know the importance of careful welding to make sure that a finished piece will hold together permanently. You can also strengthen the inner seams that can be reached within a piece by reinforcing each one with a tiny coil that can be worked in smoothly. This is how you do it. (The teacher demonstrates.)

The child fills in inner seams between every two coils. He uses a thin coil which he flattens out with the fingers of one hand while supporting the outside with the other to prevent its stretching out of shape.

As you build your piece, row upon row, what effect does the weight of the clay have upon the construction? How can you avoid this?

He is careful not to build a tall form too quickly because wet clay has a tendency to slump under its own weight. After the third row he sets his piece aside to dry slightly before adding other coils.

If your piece is tall, you must take precautions to prevent it from drying too rapidly so that it will not crack.

When he has built the form to the desired height, he wraps it with a damp cloth and puts it aside to dry slowly.

When the clay form is hardened sufficiently so that you can make clean-cut, incised lines on edges, you may also put a finishing touch to the top and bottom edges of your piece. You can also make an incised design or an applied relief motif as decoration. To attach a thin flat relief motif to the surface of your piece, you will need to crosshatch the area to be covered and apply thick slip as an adhesive.

When his piece is leather-hard, he gives a smoother finish to the top edge and bottom foot, using a wire or wooden tool. He may also use tools to give a texture to the surface to cut out pieces to be applied or to incise a design which he does freehand or from pinpricks through a paper pattern he has made.

Now that you are ready to glaze your piece, you will need to consider the kind and color of glaze that will be suited to the decoration you have already applied. How can you use color to enhance the total design?

Making his selection from matte (dull) or shiny glazes (majolica), or from underglaze, he prepares and applies it carefully to his piece.

Note: One-fire glazes may be applied to a "green," bone-dry piece. Majolica glazes are applied to bisque pieces that have been fired once. Underglaze may be used as decoration on either greenware or bisque. Often a clear transparent glaze is used over an underglaze.

EVALUATION

NOTE: It must be understood that some form of constructive evaluation, either individual or group, should be a part of every lesson. Typical evaluation questions follow.

By the Teacher

Is the child able to roll firm, evenly constructed coils?

Does he weld pieces together skillfully?

Does he show originality in his experimentation?

With the Child

Have you considered your design from all sides?

Have you made open areas that permit light to come through?

By the Teacher

Is he able to make use of interesting forms that emerge from his experimentations?

Can he construct pieces that will serve a practical purpose?

Does he apply glazes properly?

With the Child

Where do you see a unique kind of surface variation?

What was used to create it?

Where do you see a piece built up from skillfully rolled coils?

Which pieces show the correct application of glazes?

GRADE 6

Designing To Express Movement

MOTIVATION AND GUIDANCE

Teacher Says

Clay that is a "just right" consistency is so pliable and responsive to your feelings and ideas of motion and movement that it is very well suited to forms that suggest action. Working with a couple of large and small lumps or slabs and a few short, thick coils, let's see how you can combine them to create realistic or nonrepresentational forms that would express movement, such as "running wild," "tumbling freely," or "soaring on high."

Would perpendicular, upright positions or diagonal ones be more appropriate for expressing your ideas?

Would short, stubby, rounded forms be suitable?

Would a feeling of tension or of relaxation be more expressive of your particular idea and feeling?

What other qualities will help you to make your work more "telling"? Have you thought of making pierced or textured areas?

Can you make use of bridging or open spaces within your design?

In clay modeling, the quality of your craftsmanship is important, especially when a piece is to be glazed and fired. Weld all joinings very carefully. Avoid stretching your clay so that cracks appear on the surface. Be sure to hollow out all thick, heavy forms. Then all parts can dry and shrink at an equal rate and you can prevent their cracking and crumbling.

Would color add to the beauty of your piece?

Should it be dull or shiny? Will you want to use underglaze to add any details or patterned areas?

ACTIVITIES

Child Does

The child divides a mass of clay into smaller parts, rolling, coiling, flattening, pulling, shaping, and then joining them to create forms that suggest the given topics.

He recalls the sensation of movement that he may have seen or experienced so that he may translate it into 3-D form. Sometimes he can recapture the sensation of motion that he wants to convey by acting out the physical movement involved.

As he experiments, he discovers the varied possibilities for expressing his ideas and he determines the one that he considers most pleasing. He uses wood and wire tools as well as combs, mesh, nuts, bolts, and other suitable articles to make impressions in the clay.

The child crosshatches all surfaces to be joined and adds slip as an adhesive before pressing them. When his piece is leather-hard, he uses a wire tool to scoop out thick bulky parts. When his piece is bone-dry, he uses fine sandpaper on those areas that he wants to be smooth.

The child looks over the sample pieces of glazes and selects those he thinks will add to the expressive quality of his piece.

Designing Group Arrangements

MOTIVATION AND GUIDANCE

Teacher Says

Now that you have had experience in modeling single forms, you have enough skill to combine several into groups to make interesting arrangements. What topics or subjects can you suggest that will necessitate the combination of several forms or figures in a single arrangement?

Select a large lump of clay and divide it into parts, the size and number depending on the idea you have in mind. Decide upon a possible grouping, turning the entire arrangement around frequently as you model so that you can judge the sizes, placement, and suggested movement of the various parts within the total design. Will you need a base for your arrangement or will the forms touch one another and therefore hold together, no base being essential?

You can give more spirited action or more expressive feeling to your figures of people if you try to assume the position yourself or observe closely the levels of motion in a dramatic pose taken by a classmate. If you need help to capture the action of an animal, fish, or bird, you can consult pictures in the reference file or books in the library. Remember that mere accurate representation is not an art objective. You may make a form expressive through exaggeration in size or shape.

Where will the introduction of pattern or variation in surface treatment make your arrangement more interesting? What tools or other items can you use for this?

When your piece is thoroughly dry, you may use fine sandpaper to give a smooth finish to parts of your arrangement.

What kind of finish do you want to give your work? You may like to combine contrasting dull and shiny areas and to create patterns using underglazes.

ACTIVITIES

Child Does

The children discuss topics and personal experiences that lend themselves to the modeling of groups of people, animals, and related forms. They suggest ideas such as "Flipper and his friends," "the cowboy and the steer," "Noah and his sailing companions," "my gang at play."

Each child tries out various arrangements, placing some forms in front of, in back of, next to, or even on top of each other. He connects parts so that the whole composition is unified through position of the form or action of the figure. He designs a base for the group if he feels it is needed for the total design.

The child models his clay forms either by pulling out the parts such as arms or legs, or by forming separate parts and assembling them.

Where possible, he uses live models to help him capture the sensation of movement. Otherwise, he consults pictures in which he studies the lines of action, proportions, and individual characteristics of the forms. By studying many pictures that show different views of a moving form, he learns how to represent it in the round.

Using wood and wire tools, as well as other small implements, he roughens, pierces, or, in other ways, gives variety to the surface such as texture to the hair and pattern to the costume.

Working over large sheets of newspaper to catch the clay dust, the child uses small pieces of sandpaper to smooth some parts.

The child uses both matte (dull) and majolica (shiny) glazes to give variety to his design. He creates facial features, patterns of design, and other details with underglaze colors.

EVALUATION

NOTE: It must be understood that some form of constructive evaluation, either individual or group, should be a part of every lesson. Typical evaluation questions follow.

By the Teacher

Does the child's work show imagination and originality?

Is the craftsmanship consistent with the manipulative ability of the child?

With the Child

Which piece is very different from those you usually see?

Where does the surface treatment add interest to the form?

By the Teacher

Is there a dramatic quality expressed in the realistic forms?

Is the pottery piece useful as well as decorative?

Is the finish of the piece pleasing in texture and color?

In modeling groups of forms, does there seem to be a feeling of "oneness"?

With the Child

Which nonrepresentational forms clearly convey the idea and feeling intended?

Where do the color and type of finish enhance the quality of a piece?

Where do you see figures joined by the movement or position of action, such as bending over, leaning while seated, linking arms, sitting astride an animal?

GLOSSARY

The following glossary contains some of the most frequently used terms in clay activity and should form the basis of a working vocabulary for teachers and pupils.

BISCUIT OR BISQUE	Unglazed ceramic ware that has been fired once.
BONE DRY	As dry as a clay model can become without applying heat.
COIL	A long, narrow roll of clay used for building up pottery pieces and for other coil techniques.
CONE	An elongated clay pyramid designed to melt at specified temperatures and thereby indicate temperature within a kiln.
FIRING	Baking the clay object in the kiln at a temperature which vitrifies clay and glazes.
GLAZE	A glasslike substance applied in liquid form over a clay piece.
GREENWARE	Unfired clayware.
KILN	A furnace or oven in which ceramic ware is fired.
LEATHER-HARD	A term used to describe ware which is partially dry. The clay is tough enough to handle, but not thoroughly dry. In this condition, clay may be easily trimmed, smoothed, and finished.
SCORING	The process of making marks or scratches on clay with a tool; a step in welding two pieces of clay together.
SLAB	Clay that has been rolled out flat, like a thick piecrust.
SLIP	Liquid clay (clay and water mixed to a creamy consistency) used for joining two pieces of clay.
STACKING	The process of arranging pieces of clay in the kiln for firing.
UNDERGLAZE COLORS	Colors used for painting or decorating unglazed ware; transparent glaze may be applied over underglaze colors.
WEDGING	The process of removing air bubbles and conditioning clay for efficient use.
WELDING	The process of joining two pieces of clay securely with slip. Only clay with the same degree of moistness should be welded. Roughen the two surfaces to be joined with a tool. Paint surfaces with slip. Join the two surfaces firmly enough so that surplus slip oozes out. Then, with a clay tool, work two pieces together; smooth and allow to dry.